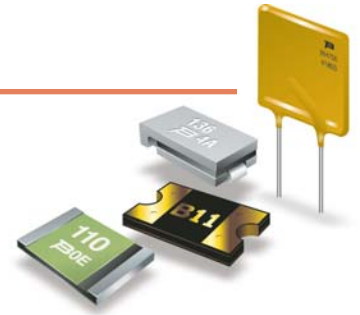


# Bourns® Multifuse® Product Selection Worksheet



Selecting the appropriate Multifuse® Polymer PTC Resettable Fuse for your application is easy - just follow these five steps:

## STEP 1

What is the preferred product form factor?

Radial Through-Hole – refer to the following data sheets:

- MF-R Series
- MF-RX/250 Series for telecom applications
- MF-RX/72 Series
- MF-R/600 Series for telecom applications
- MF-RHT Series for high temperature applications
- MF-R/90 Series for telecom applications
- MF-RG Series for automotive applications

Surface Mount – refer to the following data sheets:

- MF-SM Series
- MF-SMDF Series
- MF-MSMF Series
- MF-SMHT Series for automotive applications
- MF-USMF Series
- MF-SM/250 Series for telecom applications
- MF-NSMF Series

Strap (typically for battery packs) – refer to the following data sheets:

- MF-S Series
- MF-VS Series
- MF-LS Series
- MF-LR Series
- MF-SVS Series

## STEP 2

What is the normal operating current of the circuit?

(This is the equivalent of the  $I_{hold}$  specification of the Multifuse® Polymer PTC device.)

*Hint: Select a Multifuse® Polymer PTC device with an  $I_{hold}$  greater than the operating current.*

*For example, if a customer wants a surface mount PTC device (e.g. one of the MF-MSMF models) and has an operating current of 900 mA, the MF-MSMF110 would be a suitable model as the  $I_{hold}$  of 1.1 A is greater than 900 mA.*

Model	V max. Volts	I max. Amps	$I_{hold}$	$I_{trip}$	Resistance		Max. Time To Trip		Tripped Power Dissipation
			Amperes at 23 °C		Ohms at 23 °C		Amperes at 23 °C	Seconds at 23 °C	Watts at 23 °C
			Hold	Trip	RMin.	R1Max.			Typ.
MF-MSMF010	60.0	40	0.10	0.30	0.70	15.00	0.5	1.50	0.8
MF-MSMF014	60.0	40	0.14	0.34	0.40	6.50	1.5	0.15	0.8
MF-MSMF020	30.0	80	0.20	0.40	0.40	6.00	6.0	0.06	0.8
MF-MSMF030	30.0	10	0.30	0.60			8.0	0.10	0.8
MF-MSMF050	15.0	100	0.50	1.00			8.0	0.15	0.8
MF-MSMF075	13.2	100	0.75	1.50	0.11	0.45	8.0	0.20	0.8
MF-MSMF075/24	24.0	40	0.75	1.50	0.11	0.45	8.0	0.20	0.8
MF-MSMF110	6.0	100	1.10	2.20	0.04	0.21	8.0	0.30	0.8
MF-MSMF110/16	16.0	100	1.10	2.20	0.04	0.21	8.0	0.30	0.8
MF-MSMF125	6.0	100	1.25	2.50	0.035	0.14	8.0	0.40	0.8
MF-MSMF150	6.0	100	1.50	3.00	0.03	0.120	8.0	0.5	0.8
MF-MSMF160	8.0	100	1.60	2.80	0.035	0.099	8.0	2.0	0.8
MF-MSMF200	8.0	100	2.00	4.00	0.020	0.065	8.0	3.0	0.8
MF-MSMF250/16	16.0	100	2.50	5.00	0.015	0.100	8.0	5.0	0.8
MF-MSMF260	6.0	100	2.60	5.20	0.015	0.080	8.0	5.0	0.8

# Bourns® Multifuse® Product Selection Worksheet

## STEP 3

What is the maximum circuit voltage?

Hint: Select a Multifuse® Polymer PTC device with a  $V_{max}$  greater than the circuit voltage.

For example, if a customer wants a surface mount PTC (e.g. one the MF-MSMF models) and has a maximum circuit voltage of 5 V, the MF-MSMF110 would be a suitable model as the  $V_{max}$  of 6 V is greater than 5 V.

Model	V max. Volts	I max. Amps	$I_{hold}$	$I_{trip}$	Resistance		Max. Time To Trip		Tripped Power Dissipation
			Amperes at 23 °C		Ohms at 23 °C		Amperes at 23 °C	Seconds at 23 °C	Watts at 23 °C
			Hold	Trip	RMin.	R1Max.			Typ.
MF-MSMF010	60.0	40	0.10	0.30	0.70	15.00	0.5	1.50	0.8
MF-MSMF014	60.0	40	0.14	0.34	0.40	6.50	1.5	0.15	0.8
MF-MSMF020	30.0	80	0.20	0.40	0.40	6.00	6.0	0.06	0.8
MF-MSMF030	30.0	10			0.30	3.00	8.0	0.10	0.8
MF-MSMF050	15.0	100			0.15	1.00	8.0	0.15	0.8
MF-MSMF075	13.2	100	0.75	1.50	0.11	0.45	8.0	0.20	0.8
MF-MSMF075/24	24.0	40	0.75	1.50	0.11	0.45	8.0	0.20	0.8
MF-MSMF110	6.0	100	1.10	2.20	0.04	0.21	8.0	0.30	0.8
MF-MSMF110/16	16.0	100	1.10	2.20	0.04	0.21	8.0	0.30	0.8
MF-MSMF125	6.0	100	1.25	2.50	0.035	0.14	8.0	0.40	0.8
MF-MSMF150	6.0	100	1.50	3.00	0.03	0.120	8.0	0.5	0.8
MF-MSMF160	8.0	100	1.60	2.80	0.035	0.099	8.0	2.0	0.8
MF-MSMF200	8.0	100	2.00	4.00	0.020	0.065	8.0	3.0	0.8
MF-MSMF250/16	16.0	100	2.50	5.00	0.015	0.100	8.0	5.0	0.8
MF-MSMF260	6.0	100	2.60	5.20	0.015	0.080	8.0	5.0	0.8

## STEP 4

What is the ambient temperature of the circuit?

Hint: Refer to the thermal derating chart of the data sheet and select a Multifuse® Polymer PTC device with an  $I_{hold}$  greater than the operating current at that ambient temperature.

For example, if a customer wants a surface mount PTC device (e.g. one the MF-MSMF models) and has an operating current of 900 mA with a circuit ambient temperature of 40 °C, then the MF-MSMF110 would still be a suitable model as the  $I_{hold}$  of 950 mA at 40 °C is greater than the operating current of 900 mA.

Model	Ambient Operating Temperature								
	-40 °C	-20 °C	0 °C	23 °C	40 °C	50 °C	60 °C	70 °C	85 °C
MF-MSMF010	0.16 / 0.32	0.14 / 0.28	0.12 / 0.24	0.11 / 0.22	0.08 / 0.16	0.07 / 0.14	0.06 / 0.12	0.05 / 0.10	0.03 / 0.06
MF-MSMF014	0.23 / 0.52	0.19 / 0.45	0.17 / 0.40	0.14 / 0.34	0.12 / 0.29	0.10 / 0.25	0.09 / 0.23	0.08 / 0.21	0.06 / 0.16
MF-MSMF020	0.29 / 0.58	0.26 / 0.52	0.23 / 0.46	0.20 / 0.40	0.17 / 0.34	0.15 / 0.30	0.14 / 0.28	0.12 / 0.24	0.10 / 0.20
MF-MSMF030	0.44 / 0.88	0.39 / 0.78	0.35 / 0.70	0.30 / 0.60	0.26 / 0.52	0.23 / 0.46			
MF-MSMF050	0.77 / 1.54	0.68 / 1.36	0.59 / 1.18	0.50 / 1.00	0.44 / 0.88	0.40 / 0.80			
MF-MSMF075	1.15 / 2.30	1.01 / 2.02	0.88 / 1.76	0.75 / 1.50	0.65 / 1.30	0.60 / 1.20	0.55 / 1.10	0.49 / 0.98	0.43 / 0.86
MF-MSMF075/24	1.15 / 2.30	1.01 / 2.02	0.88 / 1.76	0.75 / 1.50	0.65 / 1.30	0.60 / 1.20	0.55 / 1.10	0.49 / 0.98	0.43 / 0.86
MF-MSMF110	1.59 / 3.18	1.43 / 2.86	1.26 / 2.52	1.10 / 2.20	0.95 / 1.90	0.87 / 1.74	0.80 / 1.60	0.71 / 1.42	0.60 / 1.20
MF-MSMF110/16	1.59 / 3.18	1.43 / 2.86	1.26 / 2.52	1.10 / 2.20	0.95 / 1.90	0.87 / 1.74	0.80 / 1.60	0.71 / 1.42	0.60 / 1.20
MF-MSMF125	1.80 / 3.61	1.63 / 3.25	1.43 / 2.86	1.25 / 2.50	1.08 / 2.16	0.99 / 1.98	0.91 / 1.82	0.81 / 1.62	0.68 / 1.36
MF-MSMF150	2.17 / 4.34	1.95 / 3.90	1.72 / 3.44	1.50 / 3.00	1.30 / 2.59	1.18 / 2.37	1.09 / 2.18	0.97 / 1.94	0.82 / 1.64
MF-MSMF160	2.30 / 5.00	2.20 / 4.40	1.90 / 3.80	1.60 / 2.80	1.45 / 2.90	1.30 / 2.60	1.15 / 2.30	1.03 / 2.06	0.91 / 1.82
MF-MSMF200	3.08 / 5.40	2.71 / 4.74	2.35 / 4.11	2.00 / 3.50	1.80 / 3.15	1.60 / 2.80	1.50 / 2.63	1.40 / 2.40	1.25 / 2.10
MF-MSMF250/16	3.9 / 7.8	3.42 / 6.84	2.96 / 5.92	2.50 / 5.00	2.24 / 4.48	1.98 / 3.96	1.85 / 3.70	1.29 / 2.58	0.94 / 1.88
MF-MSMF260	4.00 / 7.98	3.52 / 7.01	3.06 / 6.09	2.60 / 5.15	2.34 / 4.64	2.08 / 4.13	1.95 / 3.87	1.39 / 2.74	1.04 / 2.05

# Bourns® Multifuse® Product Selection Worksheet

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## STEP 5

Request samples from your nearest Bourns representative and start testing in your application.



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